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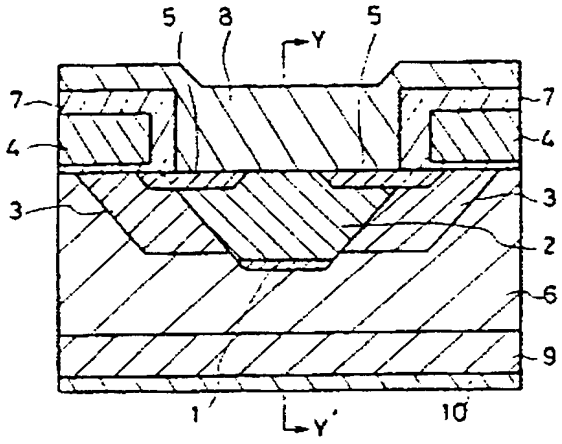
TITLE : VERTICAL INSULATED GATE FIELD EFFECT TRANSISTOR



ABSTRACT : PURPOSE: To realize a longitudinal IGFET wherein a parasitic transistor does not readily operate in the absence of an increase in ON-resistance by a method wherein a second semiconductor region of one conductivity type higher in impurity concentration than a first semiconductor region is formed on the lower section of a well region in contact with a drain region.

CONSTITUTION: In contact with a drain region 6 positioned under a well region 2, a high-concentration second semiconductor region 1 is formed, which is same as the drain region 6 in conductivity type. In such a design, breakdown strength is lower in the second semiconductor region 1 than in the surface, which causes a breakdown current to flow not on the surface but through the second semiconductor region 1. No parasitic transistor operates because there is no current in a base resistor, which contributes to the prevention of a thermal runaway. There is no increase in ON-resistance because there is no change in the gate width.